

## Contents

6.1	Introduction	6-1
6.2	Setting	6-1
6.3	Management Entities and Systems	6-2
6.3.1	Municipal and Industrial Water Management	6-2
6.3.2	Wholesalers/Multi-use Distributors	6-2
6.3.3	Navajo Nation Municipal and Industrial Water Management	6-5
6.3.4	Agricultural Water Management	6-5
6.3.5	Watershed Management	6-6
6.4	Problems and Needs	6-6
6.5	Alternatives	6-9
	<u>Tables</u>	
6-1	Public Community Water Systems Facilities	6-3
6-2	Irrigation Water Companies	6-6
6-3	Existing Lakes and Reservoirs	6-7
6-4	Potential Reservoirs	6-10
	<u>Figure</u>	
6-1	Existing Lakes, Reservoirs, and Potential Reservoirs	6-8

# Southeast Colorado River Basin

## Management

### 6.1 INTRODUCTION

This section of the Southeast Colorado River Basin Plan presents information and data on management of the water resources. This includes the responsibilities and organizational make-up of management agencies and their involvement in the storage, treatment, distribution and development of the water resources. Data are presented on the major water suppliers, public community systems, major irrigation companies, and lakes and reservoirs.

### 6.2 SETTING

When the early settlers moved into the area, they began to farm in order to support themselves. This required development of the untamed water resources for irrigation of crops and to provide water for household purposes. The earliest attempt was the Elk Mountain Mission in 1855 where diversions were earth or “earth and brush” dams. Later, more substantial structures were built such as the log diversions on Mill Creek above Spanish Valley in the 1880s. In 1879, homesteaders from Colorado joined forces with the advance vanguard of the “Hole in the Rock” expedition to construct a dam to divert water from the San Juan River for irrigation near Aneth. When the main body of the “Hole in the Rockers” arrived, they built riprap dams at Bluff to divert water. Some of the party went on to the original destination of Montezuma Creek and constructed a 16-foot waterwheel to divert water for irrigation. The floods of 1884 wiped out the improvements at Montezuma Creek and Aneth and heavily damaged those at Bluff.<sup>46</sup>

Work began in 1887 to develop North Creek in the Monticello area. After prior claims were acquired, this became the Blue Mountain Irrigation Company. Work was started in 1898 to divert water from Johnson Creek into the Blanding area but was not completed until 1902.

*The precious wild and free-flowing water has been tamed and distributed through the visionary and cooperative actions of the early settlers. This rugged stewardship is still a way of life.*

The most time consuming project was a tunnel to divert water from Indian Creek to Johnson Creek which lasted over 30 years from its inception in 1920.<sup>103</sup>

Although the Anasazi cultures left evidence of irrigation, recent practices to divert water began shortly after 1900 when Indian agents provided money and know-how to install diversions and ditches. Even now, there is only limited farming by the Navajo and Ute Indians.

Since these early beginnings, other improvements have been made in order to develop the water resources necessary to sustain the established communities and meet the growing water demands. In addition, water developments were made to support industrial

needs although these uses have fluctuated as market conditions changed.

As a result of the growing need to find new and reliable sources of water, conservancy districts, local water providers and municipalities are actively involved in the development of both surface water and groundwater sources. One of the most recent investigations involves importation of Dolores River water to a number of communities in San Juan County. This proposal is described in Section 9.

### **6.3 MANAGEMENT ENTITIES AND SYSTEMS**

Water-related service facilities are managed by a variety of agencies and organizations. There are about 15 different types of provider agencies including water and sewer agencies; municipal public works departments; water conservancy districts; water user associations; and small ditch, canal, distribution and irrigation companies. Also, water provider organizations cannot always be categorized based on their clientele or type of service provided. Often, a water supplier provides different types of water service to several different kinds of clientele.

#### **6.3.1 Municipal and Industrial Water Management**

Municipal and industrial (M&I) water is used for residential, commercial, institutional and industrial purposes. It can be either culinary (potable) or secondary (nonpotable) quality water. M&I water providers are local entities and generally include public works departments of cities and towns and the Navajo Nation. However, water conservancy districts and water-user associations also provide water for various M&I uses. The public community water systems are listed in Table 6-1. There are four public community systems in Grand County and 16 in San Juan County, nine within the Navajo Indian Reservation and one in White Mesa. There are an additional nine systems within the Navajo Indian Reservation which the Navajo Nation class as public community systems.

Unincorporated municipalities that own and operate water systems include Bluff, Eastland, Mexican Hat and Thompson. All public community water systems are regulated by the Division of Drinking Water except those listed as “Other Navajo Indian Community Water Systems”. The “Other Navajo Indian Community Water Systems” are regulated by the Navajo Nation Public Water System Supervision Program. Culinary water use is described in Section 11.

#### **6.3.2 Wholesalers/Multi-Use Distributors**

Water wholesalers are among the larger providers within the basin. They generally operate and maintain water conveyance, treatment and storage facilities associated with the larger development projects. Wholesalers may also provide water for smaller canal and ditch companies, municipalities, and a number of large industrial and commercial businesses.

Grand County Water Conservancy District - The Grand County Water Conservancy District (GCWCD) was founded in 1971 with a seven member board of directors to develop both surface water and groundwater supplies for irrigated agriculture and municipal uses in San Juan and Grand counties. The district’s main facilities include: Ken’s Lake earth fill dam and reservoir and a pressurized irrigation pipeline included in the Mill Creek Project; a 1.0- million gallon steel culinary water reservoir; and a number of wells in Spanish Valley. The district provided culinary and secondary water to residential areas serviced by the Spanish Valley Water and Sewer Improvement District (SVW & SID). It also provided irrigation water to farmers in Spanish Valley and a small amount to the Moab Irrigation Company.

The (SVW&SID) and the Grand County Special Service Water District had a contract to provide, purchase and deliver water to users. GCWCD has an exchange contract for Ken’s Lake water with White Ranches for use of a well. The GCWCD was capable of delivering

Table 6-1 PUBLIC COMMUNITY WATER SYSTEMS FACILITIES					
System	Owner/Agency	Number Served	Connections	Water Source	Storage <sup>a</sup> (no./gal)
<b>GRAND COUNTY</b>					
Day Star Adventist Academy	Day Star Adventists	37	12	3 flowing wells	1/270,000
Grand Water & Sewer Service Agency	Grand Water & Sewer Service Agency	2,238	895	4 wells	1/1,000,000
Moab City	Moab City	5,000	1,595	4 springs, 4 wells	3/3,000,000
Thompson Special Service Dist	Thompson Spec Serv Dist	70	39	1 spring	2/130,000
<b>SAN JUAN COUNTY</b>					
Blanding City Public Works Dept	Blanding City	3,299	1,100	Johnson & Indian Creeks	2/1,100,000
Eastland Special Service Dist	Eastland Special Service District	60	20	3 wells	20/100,000 <sup>b</sup>
Hall's Crossing Marina	National Park Service	330	105	2 wells	1/300,000
Monticello Municipal Water Sys	Monticello City	2,100	710	1 spring, 5 wells, South Cr	2/1,250,000
Monument Valley High School	San Juan School Dist	60	8	2 wells (in Arizona)	1/30,000 <sup>est</sup>
Navajo Mountain High School	San Juan School Dist	50	7	c	c
San Juan County Serv Area #1	Serv Area Board (Bluff)	300	146	3 wells	2/400,000
San Juan Co Spec Serv Dist #1	District Board (Mexican Hat)	110	12	2 wells	1/106,000
White Mesa Community	Ute Mountain Ute Tribe	325	100	2 wells	1/100,000
<b>Navajo Tribal Utility Authority Water Systems<sup>d</sup></b>					
Aneth Community	NTUA/Shiprock	370	143	2 wells	3/156,000
Holly Village	NTUA/Shiprock	60	28	1 well	1/72,000
Mexican Hat/Halchita Community	NTUA/Western	320	107	San Juan River, WTP	2/200,000
Montezuma Creek Community	NTUA/Shiprock	240	78	3 wells & infiltration gallery	1/70,000

Table 6-1 Continued -- PUBLIC COMMUNITY WATER SYSTEMS FACILITIES					
System	Owner/Agency	Number Served	Connections	Water Source	Storage <sup>a</sup> (no./gal)
Oljato Community	NTUA/Western	300	51	2 wells	1/236,000
Red Mesa Community	NTUA/Shiprock	240	64	1 well	1/55,000
Todohaidekani Community	NTUA/Shiprock	120	47	1 well	2/180,000
<b>Other Navajo Indian Community Water Systems</b>					
Aneth BIA Boarding School	BIA/Shiprock	300	22	3 wells	1/270,000
Goulding Trading Post & Lodge	LaFont/Western	300	63	2 wells	2/40,000
Monument Valley Mission/Hosp <sup>e</sup>	Monument Valley Hospital/Western	190	55	<sup>c</sup>	3/62,000
Monument Valley Tribal Park	Navajo Tribe/Western	250	5	1 well	1/3,000
Navajo Mtn Boarding School	BIA/Western	50	17	BIA well and <sup>c</sup>	3/25,000
Navajo Mountain Chapter House	Navajo Mtn Chapter/Western	75	15 <sup>f</sup>	Infiltration gallery	1/10,000
Navajo Mountain Health Clinic	Navajo Mtn Chapter/Western	50	10 <sup>f</sup>	<sup>c</sup>	1/N/A
Rainbow Village/Navajo Mountain	O&M/Western	255	51	3 springs collected in an infiltration gallery	1/200,000
Shonto Chapter House	Shonto Chapter/Western	150	30 <sup>f</sup>	1 well (shallow)	NA
<p>Source: Division of Water Resources Municipal &amp; Industrial Water Supply Studies - 1996.  Navajo Nation Department of Water Resources, Water Management Branch.  Note: All public community water systems are regulated by the Utah Division of Drinking Water. All public community water systems on the Navajo Indian Reservation are regulated by the Public System Supervisory Program, Navajo Nation Environmental Protection Agency.</p> <p><sup>a</sup> Storage - number of tanks and total capacity.  <sup>b</sup> There are 20 homes with 5,000 gallon cisterns.  <sup>c</sup> Served by Rainbow Village.  <sup>d</sup> NTUA - Navajo Tribe utility owners and operators.  <sup>e</sup> System is connected to the Goulding Trading Post &amp; Lodge wells.  <sup>f</sup> Estimated at 5 people per connection.</p>					

water to the City of Moab through the SVW&SID distribution system. This was only done in emergency situations.

In January 1999, the Grand County Water Conservancy District, Spanish Valley Water & Sewer Improvement District and Grand County Special Service Water District were all combined to create the Grand Water & Sewer Service Agency making the above agreements redundant. All of the operations formally carried out by the three old entities will now come under the auspices of the combined agency.

San Juan Water Conservancy District - The San Juan Water Conservancy District was founded in 1964 to develop surface water supplies for both agricultural and municipal uses in San Juan County. It has a nine member board of directors. The district owns and operates Loyd's Lake west of Monticello and a pipeline servicing a number of small local irrigated farms. Recapture Creek Reservoir north of Blanding was constructed by the district along with a pressurized pipeline delivering water to a number of small farms and industrial businesses in the Blanding/White Mesa area.



Recapture Reservoir

The district provides culinary and secondary water to the municipalities of Monticello and Blanding. It also provides agricultural irrigation water to 2,888 acres of cropland in-and-around the Blanding area including a number of small farms also serviced by the Blue Mountain and Blanding Irrigation companies. The district has assisted in a number of studies and provided

funding for projects including culinary water systems for Bluff and Mexican Hat.

### **6.3.3 Navajo Nation Municipal and Industrial Water Management**

About 23 percent of the Navajo Nation is located in San Juan County. The tribal headquarters are in Window Rock, Arizona with regional locations in Shiprock and Kayenta. There are eight chapters all or partly in Utah. These are shown in Figure 3-1.

There are public community water systems located in all but one of the chapters. In some locations, cisterns are installed and water is hauled in at regular intervals. In isolated situations, individual families haul in their own water supplies.

The Navajo Nation Division of Natural Resources, Department of Water Resources provides the technical and management functions related to the reservation water facilities. This department includes the Safety of Dams, Water Management, Operations and Maintenance, Technical and Construction, and Water Code branches.

All of the culinary water systems are operated by the Navajo Tribal Utility Authority (NTUA). The Navajo Nation Public Water Systems Supervision Program (PWSSP) has oversight on all water systems in the reservation.

The Indian Health Service oversees compliance with the federal Safe Drinking Water Act and provides funding for water system projects, either through the Sanitation Deficiency System or through housing funds. Priority is given to central water supply projects. In areas where centralized projects are not feasible, funding is available for cistern systems supplied by hauled water. Cistern systems are discouraged and are only installed as a last resort.

### **6.3.4 Agricultural Water Management**

Agricultural water provider agencies generally include conservation and conservancy districts, irrigation, ditch, canal and in some cases,

reservoir and pipeline companies. Irrigation companies are shown in Table 6-2.

Agricultural water users are generally small entities governed by boards of directors with a part-time general manager and small or no clerical and facility maintenance staffs. These organizations are generally financed through assessments on water shares owned by private individual water users.

Irrigation companies deliver most of the agricultural water to the farmers although there is a significant amount supplied by individuals. Most of the irrigation companies have constructed irrigation-water storage reservoirs to provide better management of the existing supplies. Table 6-3 presents data on these reservoirs. Locations of the reservoirs are shown on Figure 6-1.

### 6.3.5 Watershed Management

The majority of the watershed areas are managed by federal and state agencies. Most of the private lands are located where there are arable soils and enough moisture, either precipitation or irrigation water, to raise a crop. The public lands in the watershed areas are nearly always managed through a joint cooperative effort between private individuals, the Forest Service, and the Bureau of Land

Management (BLM). These areas are generally well managed and many have a better growth of vegetation than existed five to six decades ago. There are, however, localized areas of concern where there is excessive erosion.

The BLM has recently investigated the Comb Wash area west of Blanding.<sup>55</sup> These investigations have indicated there are some areas of moderate to high erosion of existing stream banks and channels along with some general sheet erosion. Some of the area is beginning to restore itself but most of it needs more intense management.

To better manage the overall resource, the BLM is completing a watershed management plan for the entire 185,600-acre watershed. Project work and /or more intensive management will begin after the plan is approved and funding is secured.<sup>55</sup>

## 6.4 PROBLEMS AND NEEDS

The Southeast Colorado River Basin is experiencing moderate population growth in most of its cities and towns. The area has an influx of people from both in-state and out-of-state who prefer the relative isolation of the area, favorable winter climate and close proximity to Lake Powell. Popular recreational

Table 6-2 IRRIGATION WATER COMPANIES		
County/Company	Area Served <sup>a</sup> (acres)	Water Source
<u>Grand County</u>		
Castle Valley Irr Co.	400-500	Castle Creek
Moab Irr Co.	1,100	Mill Creek
<u>San Juan County</u>		
Blanding Irr Co.	4,100	Johnson, Recapture & Indian Creeks
Blue Mountain Irr Co.	1,200	North and South Creeks
Carlisle Water Co.	500	North Creek
La Sal Irr Co.	400	La Sal, Beaver, Two Mile, & Indian Cr.
Pioneer Ditch Water Users	500	South Creek
<sup>a</sup> Area served includes other lands in addition to those currently irrigated.		

Table 6-3  
EXISTING LAKES AND RESERVOIRS

County/Name	Owner	Supply Source	Dam Height (feet)	Capacity (acre-feet)	Area (acres)	Use
<b>GRAND</b>						
1 Crescent Lake	Bureau of Land Management	Crescent Wash	30	182	15	I
2 Hidden Lake	State of Utah--Trust Admin.	Tributary to Beaver Creek	18	40	NA	FC
3 Oowah	Forest Service	South Fork of Mill Creek	27	27	4	R
4 Pace Lake	J.B. Ranch	John Brown Creek	15	364	58	I
<b>SAN JUAN</b>						
5 Bailey	Rick Bailey	Spring Creek (off channel)	26	100	40	I
6 Bankhead (lower)	Jim Blankenagel	West Coyote Wash	13	127	5	I
7 Bankhead (upper)	Jim Blankenagel	West Coyote Wash	15	100	42	I
8 Blanding City No. 3	Blanding City	Johnson Creek	47	133	10	I
9 Blanding City No. 4	Blanding City	Westwater Creek	52	520	40	I
10 Camp Jackson	Blanding City	Johnson Creek	25	49	5	M&I
11 Dark Canyon	Forest Service	Dark Canyon Creek	33	67	6	R
12 Don's Lake	State of Utah--Trust Admin.	Tributary to Beaver Cr.	12	15	NA	R
13 Dry Wash No. 2	Blanding Irr. Co.	Johnson Creek	43	185	15	I
14 Dugout Ranch	Nature Conservancy	Indian Creek	49	520	40	I
15 Foy	Div. of Wildlife Resources	Spring	18	25	3	R
16 Gordon	Carlisle Water Co.	North Creek	34	179	17	I
17 Iron Springs	Norman & Richard Nielson	Iron Springs Canyon	18	1,200	204	I
18 Keller	Grayson Redd	Vega Creek	18	206	34	I
19 Ken's Lake <sup>a</sup>	Grand Co. WCD	Mill Creek	98	2,820	86	I,R
20 Loyd's Lake	San Juan WCD	South Creek	74	3,500	95	I,R
21 Monticello City No. 1	Monticello City	North Cr. (off stream)	26	125	20	M&I
22 Monticello City No. 2	Monticello City	North Cr. (off stream)	17	25	2	M&I
23 Monticello City No. 3	Monticello City	North & South Cr. Springs	15	30	3	M&I
24 Monticello Lake	Div. of Wildlife Resources	Spring Creek (off stream)	25	27	3	R
25 Provancha	Redd Ranches	East Coyote Wash	27	50	6	I
26 Rattlesnake Ranch No. 1	Jim Blankenagel	West Coyote Wash	23	100	25	I
27 Rattlesnake Ranch No. 2	Jim Blankenagel	West Coyote Wash	43	377	31	I
28 Recapture Creek	San Juan WCD	Recapture Creek	140	9,319	265	I,R
29 Snyder No. 2	Charles Snyder	Coal Bed Creek	18	75	15	I
30 Starvation Canyon	Blanding City	Johnson Creek	60	600	33	I,M&I,R

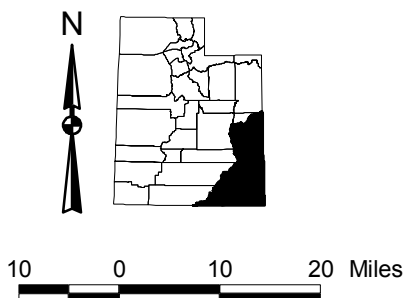
<sup>a</sup> Most of the water is used in Grand County.

Note: FC - Flood Control I - Irrigation, M&I - Municipal and industrial, R - Recreation.

Figure 6-1

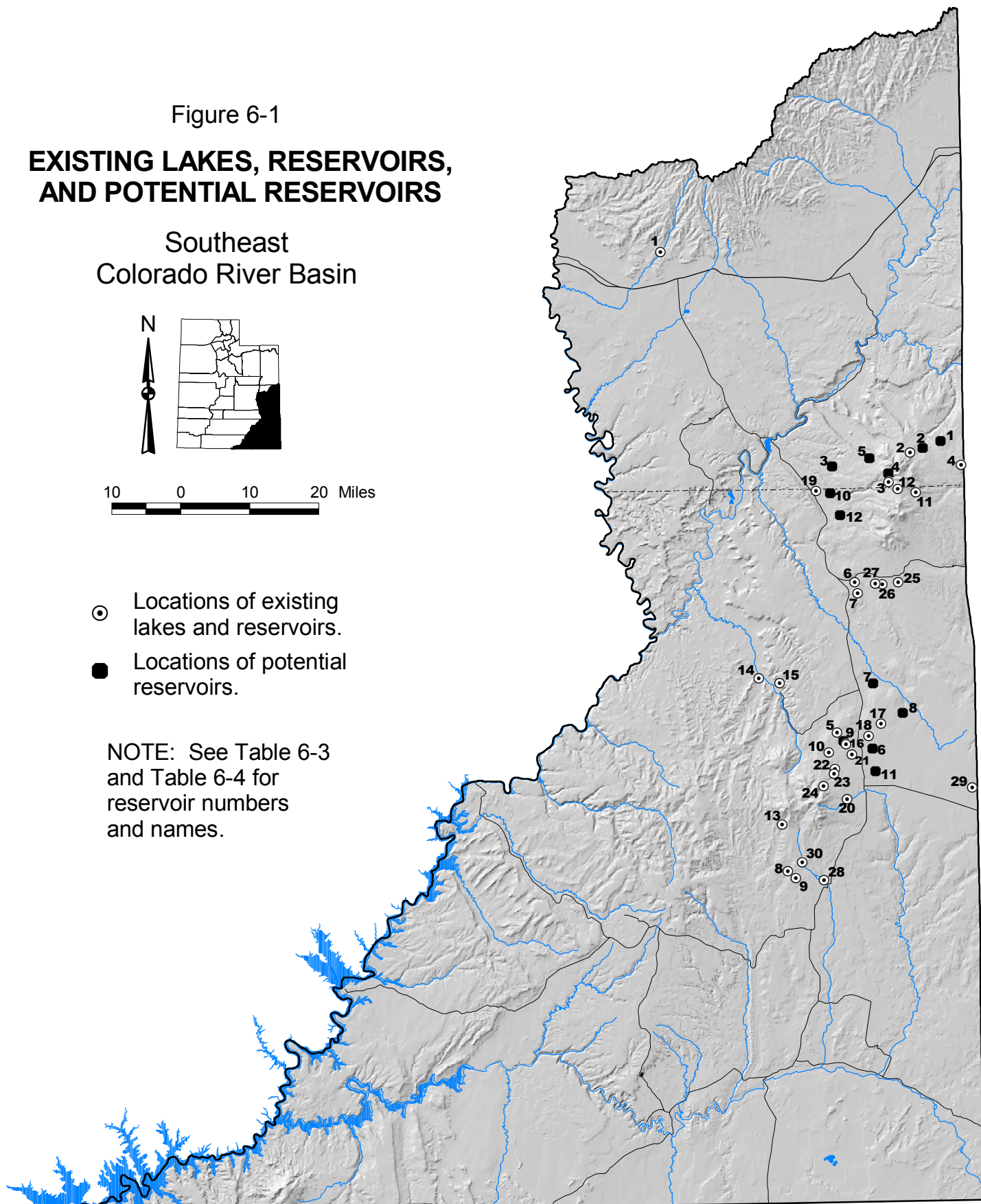
# **EXISTING LAKES, RESERVOIRS, AND POTENTIAL RESERVOIRS**

Southeast  
Colorado River Basin



- Locations of existing lakes and reservoirs.
- Locations of potential reservoirs.

NOTE: See Table 6-3  
and Table 6-4 for  
reservoir numbers  
and names.



activities include river rafting, hiking, biking, 4-wheeling, movie making and other outdoor activities.

The Spanish Valley/Moab area is projected to experience population growth that will increase the water demands beyond the present developed supply. This will require conjunctive management of the alluvial and Glen Canyon bedrock aquifers so that additional culinary quality water will be available to meet future demands. The Thompson Water Improvement District has adequate culinary water to meet projected needs until 2020. Beyond that point in time, additional supplies will be required. There is a need for cooperative management and improvement of the culinary water systems for the communities of Mexican Hat and Halchita so they could be combined into one system. Cooperative funding through the Utah Division of Drinking Water and the Bureau of Indian Affairs/Navajo Nation would provide facilities to serve both communities.



Mexican Hat water tank

The backlog of water supply and delivery facilities on the Navajo Indian Reservation will require large amounts of funding.<sup>85</sup> Many communities are using systems that need upgrading and expansion to serve more people. At the present rate of funding, projects now being considered are years away from being constructed.

## 6.5 ALTERNATIVES

Some potential management alternatives are briefly discussed below. More detail on these and other alternatives is presented in Section 9.

There is the potential to obtain additional water from the Dolores Project in Colorado. This would require a reservoir in Coal Bed Canyon so water could be delivered to the Eastland, Monticello and Blanding areas for various uses. Culinary water could also be purchased from Montezuma County Water Conservancy District.

There is also the potential for making additional use of water from the Colorado and San Juan rivers. Additional Colorado River water could be diverted for irrigation along the river in the Castle Valley and Moab areas. Water from the San Juan River can be treated and used in Mexican Hat and in conjunction with filling the additional needs in Halchita. San Juan River water can also be diverted for lawn and garden and agricultural use in the Aneth, Cajon Mesa, Montezuma Creek, Bluff and Mexican Hat areas.

There are extensive consolidated rock aquifers throughout the basin. Although these aquifers are at varying depths and contain poor to good quality water, there is potential for development. Aquifers within the Navajo Indian Reservation could be further developed to provide culinary water for the chapters and communities. The amount of groundwater that could be developed is not known at this time.

There are several potential reservoir sites that have been investigated over many years. The two potential reservoirs on Mill Creek are alternatives to enlarging Ken's Lake. The data available are shown in Table 6-4. There may be small reservoirs in place at some sites. Location of these reservoirs is shown on Figure 6-1. □

Table 6-4  
POTENTIAL RESERVOIRS

No.	Name	Source of Supply	Location S T R	Height (feet)	Capacity (ac-ft)	Notes
<b>GRAND COUNTY</b>						
1	Fish	Beaver Creek/Dolores River	35 25S 25E	39	98	a
2	Fisher Valley	Beaver Creek/Dolores River	5 26S 25E	20	63	a
3	Mill Creek below Forks	Mill Creek	8 26S 23E	206	10,022	a,b,c
4	Oowah Lake (enlargement)	South Fork of Mill Creek	34 26S 24E	43	51	a,b
5	Wilson Mesa	Pinhook Creek/Placer Creek/Castle Cr	22 26S 24E	14	100	a
<b>SAN JUAN COUNTY</b>						
6	Blue Mountain	Spring Creek/Vega Creek/North Montezuma Creek/San Juan River	35 32S 24E	14	1,200	a
7	East Canyon (lower)	E Can Cr/Hatch Can Cr/Kane Sp Can Cr	8 31S 24E	38	2,474	a
8	East Canyon (upper)	E Can Cr/Hatch Can Cr/Kane Sp Can Cr	31 31S 25E	40	1,447	a
9	Gordon Dam (enlargement)	Spring Creek/Vega Creek/North Montezuma Creek/San Juan River	33 32S 24E	38	2,500	a
10	Mill Cr. (Upper Sheley)	Mill Creek	4 27S 23E	106	1,203	a,b,c
11	North Creek	North Creek	27 33S 24E	70	2,350	a
12	Pack Creek	Brumley Creek/Pack Creek/Mill Creek	14 27S 23E	111	761	a,b
Notes: a - Topography, cross sections, area-capacity table, other data available. b - Preliminary investigation made. c - These sites are alternatives to Ken's Lake enlargement if the water supply is adequate or if additional recreation facilities become desirable. Source: Twenty-Second and Twenty Fourth Biennial Report of the State Engineer to the Governor of Utah. For the Bienniums 1938-40 and 1942-44.						